CLAIM AMENDMENTS:

Listing Of Claims:

1. (Previously presented) An apparatus for detecting a ferromagnetic object comprising

a passive primary sensor comprising first and second magnetic sensors, the primary sensor adapted to measure an ambient magnetic field within a localized volume of space defined by a zone of sensitivity of the first and second magnetic sensors and to produce a corresponding measurement signal,

a secondary, non-magnetic, sensor adapted to detect the movement of objects in the vicinity of the primary sensor,

a signal processor arranged in communication with the primary and secondary sensors, and

a warning device operable by an output from the signal processor, the warning device adapted to provide within the vicinity of the primary sensor at least one of an audible warning and visible warning,

wherein the signal processor is configured to identify temporal variations in the measurement signal due to the movement of a ferromagnetic object within the ambient magnetic field and to correlate the identified temporal variations in the measurement signal with movement of objects detected by the secondary, non-magnetic sensor, and to provide an output indicative of the presence of a ferromagnetic object in the vicinity of the primary sensor only in the presence of a correlation there-between.

2. (Currently amended) An apparatus according to claim 1 wherein the secondary, non-magnetic sensor comprises at ~~lest~~ least one of a photo-electric sensor, a fibre-optic sensor, a passive infrared sensor, a camera, a thermal imager, an ultrasonic sensor, a radar sensor, an electrostatic sensor, a millimetre wave sensor and a pressure sensitive mat.

3. (Previously presented) An apparatus according to claim 1 further comprising an access control device for preventing access to a prohibited area, operable by the output from the signal processor.

4. (Original) An apparatus according to claim 3 wherein the access control device comprises at least one of a lock and a barrier.

5. (Original) An apparatus according to claim 1 wherein the signal processor comprises a filter arranged to substantially reject spurious variations in the measured magnetic field.

6. (Original) An apparatus according to claim 5 wherein the filter comprises a high-pass filter.

7. (Original) An apparatus according to claim 6 wherein the high-pass filter is responsive to the measurement signal produced by the primary sensor to attenuate variations therein having a frequency of less than 0.3 Hz.

8. (Original) An apparatus according to claim 5 wherein the filter comprises a low-pass filter.

9. (Original) An apparatus according to claim 8 wherein the low-pass filter is responsive to the measurement signal produced by the primary sensor to attenuate variations therein having a frequency of greater than 3 Hz.

10. (Original) An apparatus according to claim 5 wherein the signal processor comprises a comparator for comparing the amplitude of the output from the filter with an adjustable threshold level so as to indicate temporal variations in the measurement signal due to the movement of a ferromagnetic object with an ambient magnetic field.

11. (Previously presented) An apparatus according to claim 1 wherein the first magnetic sensor comprises one of a fluxgate sensor, a magneto-resistive sensor, a magneto-impedance sensor, a hall-effect sensor, and a galvanic coil sensor.

12. (Previously presented) An apparatus according to claim 11 wherein the second magnetic sensor comprises one of a fluxgate sensor, a magneto-resistive sensor, a magneto-impedance sensor, a hall-effect sensor, and a galvanic coil sensor.

13. (Original) An apparatus according to claim 12 wherein, at least one of the first and second magnetic sensors is separable from the signal processor such that, in use, the at least one separable sensor may be disposed remotely to the signal processor.

14. (Original) An apparatus according to claim 1 wherein, in use, the primary sensor is arranged to detect ferromagnetic objects in the vicinity of a magnetic resonance imaging scanner.

15. (Previously presented) A magnetic resonance imaging scanner comprising an apparatus for detecting ferromagnetic objects according to any one of the preceding claims.

16. (Previously presented) A method for detecting a ferromagnetic object comprising the steps of

(i) measuring an ambient magnetic field using a passive primary sensor comprising first and second magnetic sensors and producing a corresponding measurement signal,

(ii) detecting the movement of objects in the vicinity of the primary sensor using a secondary, non-magnetic sensor,

(iii) identifying temporal variations in the measurement signal produced by the primary sensor due to the movement of a ferromagnetic object within the ambient magnetic field within a localized volume of space defined by a zone of sensitivity of the first and second magnetic sensors,

(iv) assessing said identified temporal variations in the measurement signal in conjunction with movement of objects detected by the secondary, non-magnetic sensor to determine a correlation there-between, and

(v) in the occurrence of a correlation, providing an indication of the presence of a ferromagnetic object wherein the step of providing the indication of the presence of a ferromagnetic object comprises the step of producing within the vicinity of the primary sensor means at least one of an audible and visible warning.

17. (Previously presented) A method of preventing the introduction of a ferromagnetic object into the vicinity of a magnetic resonance imaging scanner comprising the steps of

(i) providing an apparatus for detecting a ferromagnetic object according to claim 1,

(ii) surveying an entrance to a room in which the magnetic resonance imaging scanner is located and identifying at least one preferred mounting position for the apparatus,

(iii) installing said apparatus at the at least one preferred mounting position, such that, in use, the apparatus provides a warning upon detection of a ferromagnetic object in the vicinity of the entrance to the room in which the magnetic resonance imaging scanner is located.

18. (Previously presented) A method according to claim 17 wherein the at least on preferred mounting position is at the side of the entrance to the room in which the magnetic resonance imaging scanner is located.

19. (Previously presented) A method according to claim 17 wherein the at least on preferred mounting position is about 1 metre from the entrance to the room in which the magnetic resonance imaging scanner is located.

20. (Previously presented) A method according to claim 17 further comprising the step of (iv) installing an access control device at the entrance to the room in which the magnetic resonance imaging scanner is located such that, in use, the apparatus prohibits entry to the room upon detection of a ferromagnetic object in the vicinity of the entrance.